

FIGURE 1

Alignment of Biotin Synthase Proteins from Barley (SID18), Corn (SID 20-24), Prickly Poppy (SID 28), Soybean (SID 28 and 30), and Wheat (SID 32)

SIDI8	TTTPSAVSPSAAAAPFRPALLAEPAMMLLLARSLRSRVRSPFASAVSAAPFSSVSAAAAFARAVRDGPRNDWTRP
SID20	- 1
SID22	
SID24	
SID26	ILKVQSL-RAR
SID28	TKPNPKHKYRCCLLSLSCLYSQISHSFSVVSLPNFEFESKNMFLARPIFRAPSLWALHSSYAYSSASAAAIOAERAIKGPRNDWSRD
SID32	
1705463	GLOSASCYSSVFRSQLRPSV-SGGLOSASCYSSLSAASAERTIREGPRNDWSRD
SID30	MATLRTSLSRSLILLRSNTPKLAPISSSVRLQVQKSRNYGTVSSVPPQATETSSTSPSKDVYQEALNATE-PRSNWTRE
2995363	M
6321725	M

EIQAIYDSPLLDLLFHGAQVHRNVHKFREVQQCTLLSIKT*GGCSEDCSYCPQ*SSRYSTGLKAEKLMKKDAVLEAAKKAKEAGSTRFCMGA -----SSRYNTGLKAQKLMNKYAVLEAAKKAKESGSTRFCMGA EIQAVYDSPLLDLLFHGAQVHRNVHKFREVQQCTLLSIKT*GGCSEDCSYCPQ*SSRYNTGLKAQKLMNKYAVLEAAKKAKESGSTRFCMGA EIKSVYDSPVLDLLFHAAQVHRHAHNFREVQQCTLLSVKT*GGCSEDCSYCPQ*SSRYDTGVKAQKLMNKDAVLQAAEKAKEAGSTRFCMGA QVKSIYDSPILDLLFHGAQVHRHAHNFREVQQCTLLSIKT*GGCSEDCSYCPQ*SSKYDTGVKGQRLMNKEAVLQAAKKAKEAGSTRFCMGA ----RDAVLEAAKKAKEAGSTRFCMGA EIKSVYDSPLLDLLFHGAQVHRHVHNFREVQQCTLLSIKT*GGCSEDCSYCPQ*SSRYSTGVKAQRLMSKDAVIDAAKKAKEAGSTRFCMGA EIKAIYDKPLMELCWGAGSLHRKFHIPGAIQMCTLLNIKT*GGCSEDCSYCAQ*SSRYQTGLKASKMVSVESVLAAARIAKDNGSTRFCMGA EIQKIYDTPLIDLIFRAASIHRKFHDPKKVQQCTLLSIKT*GGCTEDCKYCAQ*SSRYNTGVKATKLMKIDEVLEKAKIAKAKGSTRFCMGS $\tt QLKEIYHTPLLELTHAAQLQHRKWHDPTKVQLCTLMNIKS \textit{GGCSEDCKYCAQSSRNDTGLKAEKMVKVDEVIKEAEEAKRNGSTRFCLGA$ EIQAVYDSPLLDLLFHGAQ---1705463 6321725 2995363 SID20 SID22 SID24 SID26 SID28 SID32 SID30 SID18

FIGURE 1 (page 2 of 2)

AWRETIGRKTNFNQILEYVKDIRGMGMEVCCTLGMLEKQQAEELKKAGLTAYNHNLDTSREYYPNIISTRSYDDRLQTLQHVREAGISVC AWRETIGRKSNFNQILEYVKEIRGMGMEVCCTLGMIEKQQAEELKKAGLTAYNHNLDTSREYYPNIITTRSYDDRLQTLEHVREAGISIC AWRETIGRKSNFNQILEYVKEIRGMGMEVCCTLGMIEKQQAEELKKAGLTAYNHNLDTSREYYPNIITTRSYDDRLQTLEHVREAGISIC AWRETIGRKSNFNQILEYVKEIRGMGMEVCCTLGMIEKQQAEELKKAGLTAYNHNLDTSREYYPNIITTRSYDDRLQTLEHVREAGISIC AWRDTVGRKTNFKQILEYVKEIRGMGMEVCCTLGMIEKQQAVELKQAGLTAYNHNLDTSREYYPNIITTRSYDDRLQTLEFVRDAGINVC AWRDTLGRKTNFNQILEYVKDIRGMGWEVCCTLGMLEKQQAVELKKAGLTAYNHNLDTSREYYPNIITTRYDERLQTLGFVRDAGINVC AWRDTIGRKTNFNQILEYVKDIRGMGWEVCCTLGMLEKQQAEELKKAGLTAYNHNLDTSREYYPNIITTRYDERLQTLQHVREAGISVC AWRDTIGRKTNFNQILEYIKEIRGMGMEVCCTLGMLEKQQAEELKKAGLTAYNHNLDTSREYYPNITTRSYDDRLGTLGHVREAGINVC AWRDLNGRKTNFKNYKTNVSEIRGMGMEVCVTLGMIDAEQAQELKEAGLTAYNHNVDTSRDFYPKVITTRTYDERLDTIKNVREAGINVC AWRDLNGRNRTFKNILEIIKEVRSMDMEVCVTLGMLNBQQAKELKDAGLTAYNHNUDTSREYYSKIISTRTYDERLDTIKNVREAGINVC AWRDLNGRNRTFKNILEIIKEVRSMDMEVCVTLGMLNBQQAKELKDAGLTAYNHNLDTSREYYSKIISTRTYDERLDTIKNVREAGINVC AWRDMKGRKSAMKRIQEMVTKVNDMGLETCVTLGMVDQDQAKQLKDAGLTAYNHNIDTSREYYSKVITTRTYDDRLDTIKNVOFGGTKAAC
SID18 SID20 SID24 SID24 SID26 SID28 SID32 1705463 SID30 2995363

--VEIWEMIRMIASARIVMPKAMVRLSAGRVRFSMPE SGGIIGLGEAEEDRVGLLHTLATLPSHPESVPINALLAVKGTPLED--QKP----VEIWEMIRMIATARIVMPKAMVRLSAGRVRFSMSE SGGIIGLGEAEEDRVGLLHTLATLPTHPESVPINALVAVKGTPLED--QKP----VEIWEMIRMIATARITMPKAMVRLSAGRVRFSMPE SGGIIGLGEAEEDRVGLLHTLATLPTHPESVPINALVAVKGTPLED--QKP----VEIWEMIRMIATARITMPKAMVRLSAGRVRFSMPE SGGIIGLGEAEEDRVGLLHTLATLPTHPESVPINALVAVKGTPLED--QKP----VEIWEMIRMIATARITMPKAMVRLSAGRVRFSMPE SGGIIGLGEAEEDRVGLLHTLATLPTHPESVPINALIAVKGTPLQD--QKP----VEIWEMIRMIASARIVMPKAMVRLSAGRVRFSMPE TGGILGLGENKSDHIGLLETVATLPSHPESFPVNMLVAIKGTPLEG--NKK----VEFENMLRMVATARIVMPKTIVRLAAGRGELSEEQ SGGILGLGEKKHDRVGLIHSLATMPTHPESVPFNLLVPIPGTPVGDAVKER----LPIHPFLRSIATARICMPKTIIRFAAGRNTCSESE SGGIIGLGEAEEDRVGLLHTLSTLPTHPESVPINALVAVKGTPLED--QKP----VEIWEMIRMIATARIVMPKAMVRLSAGRVRFSMPE SGGIIGLGEAEEDRIGLLHTLATLPSHPESVPINALLAVKGTPLED--QKP----VEIWEMIRMIGTARIVMPKAMVRLSAGRVRFSMSE TGGILGLGESEDDHIGFIYTLSNMSPHPESLPINRLVAIKGTPMAEELADPKSKKLQFDEILRTIATARIVMPKAIIRLAAGRYTMKETE SGGIIGLGEAEEDRVGLLHTLATLPTHPESVPINALIAVKGTPLQD--QKP-1705463 2995363 6321725 SID20 SID18 SID22 SID24 SID26 SID28 SID32 SID30

QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP-----NFGDEEATVASSTE--RCEQ--AASM QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP----SFGEEEASAAAPTESERSEQ--AASM QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP----SFGEEEVSAAAPAESERSEQ--AASM QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP----SFGEEEASAAAPTESERSEQ--AASM QALCFLAGANSIFTGEKLLTTPNNDFDADQLMFKVLGLLPKAP-----SLHEGE----TSVTEDY--KEAASSS QALCFLAGANSIFTGEKLLTTPNNDFDADQMMFKILGLTPKAP-----NFDQTS----TSFEAERCEQEATAS-QALCFLAGANSIFAGEKLLTTANNDFDADQAMFKILGLIPKAP-----NFGDEEVMVAAPTE--RCEQ--AALM QALCFLAGANSIFTGEKLLTTPNNDFDADQLMFKTLGLIPKPP----SFSEDD----S--ESENCEKVASASH QVLCFNAGANAVFTGETMLTTPAVGWGVDSVVFNRWGLRPMESFEVEALKNDKPATTNTEIPVEASKAEMPGTVA QALAFMAGANAVFTGEKMLTTPAVSWDSDSQLFYNWGLEGMQSFEYGT----STEGEDGTFTLPPKERLAPSPSL QFVCFMAGCNSIFTGKKMLTTMCNGWDEDKAMLAKWGLQPMEAFKYD---1705463 2995363 5321725 SID18 SID24 SID30 SID20 SID22 SID26 SID28 SID32

FIGURE 2: Clone cdt2c.pk002.c17 Contains a 99 Nucleotide Deletion